1: Conzemius M-4, 5 (1921) 1932
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cotton, but this manner of facilitating navigation may have been of European introduction. To-day the Indians make sails from canvas or other imported cloth, and employ them on the sea, lagoons, and the larger rivers.

RAFTS.—In descending the rivers the Indians also make use of rafts (M.: *puhlak;* T., P.: *pala, dana;* U.: *lim*). They are made by tying a number of balsa stems or other light wood together with the aid of lianas or vegetable fibers. For lack of other light woods at hand, banana stems are sometimes used for this purpose, but these soon become water-logged. The stems are generally half submerged, but on large balsa rafts the natives descend from the interior with heavy cargoes of merchandise or livestock.

SKILL AND ENDURANCE OF THE INDIAN BOATMEN.—Both Miskito and Sumu are remarkable for their skill and endurance as boatmen. They work in a rhythm, and at each thrust all the paddles lightly strike the gunwale of the canoe together. From time to time, at a sign of the bowman, all the paddles are lashed simultaneously with the flat part of the blade upon the surface of the water.

The river Indians of the interior are very skillful in the management of the canoes through the falls and rapids of the streams. When proceeding upstream the boat is generally hauled through a side channel, or overland with the aid of strong withes or lianas [39] which are fastened to the hole in the bow. But a greater danger consists in "shooting" the rapids, the canoe rushing with great speed down the crooked channel oversown with projecting rocks. One Indian stands in the bow with a pole balanced in the middle, with which he touches the rocks scattered in the river, in order to guide the dashing pitpan and ward it off from these dangers. Every one is silent and watchful except for the short, sharp words of direction from the bowman to the captain, who is at the stern and assists with the timely stroke of the paddle. If the canoe gets swamped, the Indians jump overboard and, hanging on to it with one hand, they bail out the water with the aid of a calabash.

DOMESTICATION OF ANIMALS AND BIRDS

INDIGENOUS ANIMALS.—Many indigenous animals are tamed to keep as pets. Of these the most frequently seen are the capuchin or white-faced monkey (*Cebus* sp.), the spider monkey (*Ateles* sp.), the howling monkey (*Alouatta* sp., syn. *Mycetes* sp.), paca (*Cuniculus*

[39] Many trees are covered with such parasitic vines or lianas which climb up the stem to the branches, from which they hang freely down like ropes in sizes from very thin ones to others measuring up to 2 and even 3 inches in diameter. They are stronger than string or rope and resist the influence of the climate much better.

1: Conzemius M-4, 5 (1921) 1932
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sp.), agouti (*Dasyprocta* sp.), deer (*Odocoileus* sp. and *Mazama* sp.), squash or coati (*Nasua narica*), and raccoon (*Procyon lotor*).

Wickham (b: 163; c: 200) even saw a tame otter among the Ulwa of Rio Escondido. The Indian women have great patience in taming young animals and they will suckle them as they would their own children. These animals are generally caught while still very young.

INDIGENOUS BIRDS.—The domestic turkey is now found in almost every hut. Among the other native birds which are usually tamed by the Indians are the following: curassow (*Crax* sp.), guan (*Penelope* sp.), mountain hen (*Tinamus* sp.), muscovy duck (*Cairina moschata*), macaw (*Ara* sp.), parrot (*Chrysotis* sp.), parrakeet (*Conurus* sp.), toucan (*Ramphastos* sp. and *Pteroglossus* sp.).

The birds are taken out of the nest while still young, but old birds are occasionally tamed. When slightly wounded or when shot with a blunt arrow they are carried home and kept for a few days without any food. After that they become generally very docile and are ready to eat the food given to them.

NATIVE BEES.—Various species of the native stingless bees are occasionally found in a semidomesticated state around the Indian huts. About a dozen species are found in the country, all belonging to the family of the Meliponidae. The largest of them is about the size of the European bee. The honey cells are circular and the honey is yellow and slightly acidulous in taste; it does not crystallize when kept for some time, as is the case with that of the European bee. It is slightly laxative and is generally diluted with water, either fresh or after having been allowed to ferment. Previous to the introduction of sugar-cane, honey was used to sweeten food. The wax, which is light brown in color, is used as "cement" in the making of arrows, spears, and other implements; in certain regions it is also used for lighting purposes. The Indians also collect the honey from the bee nests in the forests and store it in large bamboo joints.

DOMESTIC ANIMALS OF FOREIGN ORIGIN.—The most common domestic animals are the dog, pig, cattle, and fowl, while the horse, cat, goat, and sheep are rarely seen. All these animals are of foreign origin and have been introduced from the interior of Honduras and Nicaragua. Among the Indians they are known almost invariably by their Spanish or English name.[40] When the Indian family travels all the livestock is taken along.

CATTLE.—Cows (M.: *bip*, from the English "beef"; S.: *toro*, from the Spanish *toro* "bull") are owned by many Indians, especially those living in the savannas. They feed on the coarse grass, there being no artificial pastures made by the Indians. The cows are rarely

[40] The Ulwa, however, call the cow and the horse by the native names they apply to deer (*sana*) and tapir (*pamka*), as do a number of other tribes in Central and South America.

1: Conzemius M-4, 5 (1921) 1932
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milked, their owners being unwilling to "rob" the calf, but the meat is esteemed.

HORSES.—Horses (M.: *aras*, from the English "horse") are not common, while mules and donkeys are conspicuous by their absence. The horse is sometimes used as a riding animal by the savanna Indians, but loads are transported either by canoe or on man's back. The Indians ride bareback and use a sort of bridle consisting of a rope made from bark fiber, which is tied loosely round the lower jaw, leaving two ends for reins. When swimming the horse in deep water, the rider gets off its back, at the upside in case of a running stream, and swims beside the animal, holding on by its mane. As soon as the horse touches bottom he gets on again. The manner employed in breaking a young horse is very simple. One man leads it with a rope into the water, to a depth of 3 or 4 feet. Then another man quickly jumps upon its back, whereupon the frightened animal begins to buck and skit. After a while it is completely exhausted and docile.

PIGS.—Pigs (M. and T.: *kwirku*, from the Spanish "puerco"; P. and U.: *kusi*, from the local Spanish "cuche") were already found occasionally among the Miskito at the end of the seventeenth century (M. W.: 310). Pork is rarely eaten by the Indians, and fattened hogs are sold to the foreigners and Ladinos. Little care is given to these animals; they are left to roam around and find a large part of their food themselves. At night they are kept in a pen adjoining the dwelling, or they are brought inside and tied to a post on account of the various felines preying upon them.

FOWL.—The domestic fowl (M.: *kalila*, from the Spanish "gallina") is found in every house. It is esteemed chiefly on account of the crowing power of the cock, which serves as a clock at night. The Miskito had already some fowls at the end of the seventeenth century (M. W.: 310). Among the Sumu this bird is called *sakara* and *katarama;* these appear to be onomatopœic names, and similar terms are met with in other parts of Central and South America.

DOGS.—In every Indian dwelling there roam about some sneaky, repulsive curs, ready to steal if they are left unwatched for an instant. They are kept as pets, as watch dogs, but above all, for the chase. Good hunting dogs, especially such as are trained to hunt the jaguar or the puma, are very highly valued. The Indians feed them but little, fearing that they will lose all interest in hunting. The dogs are therefore very lean and the bones of the long, thin body generally appear distinctly beneath the skin. They roam about the house during the night and make their lair at the foot of that of their masters; they are responsible for the bloodthirsty fleas which abound in the Indian dwellings.

1: Conzemius M-4, 5 (1921) 1932
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231 439 According to Belt (204) the Sumu living on the upper Rio Grande used to come periodically to the Spanish settlements in order to obtain dogs. They would barter a gun or a large iron pot for a single dog, if it was of the right color. Some Ladinos around Olama had even in those days commenced to rear dogs to supply the demand. These Indians had a special liking for black ones, and did not value those of any other color so much. Lehmann (c: I, 405) states that [764] the Miskito formerly buried a red dog (*pāuan*) with a dead person, in order to serve the latter on his voyage to the underworld. However, the writer has never observed that either Sumu or Miskito have a preference for a certain color.

231 There is no record of the former existence on the Mosquito Coast of the "xulo" (xolotl) or barkless dog, which was tamed in the Pacific region of Nicaragua at the time of the conquest. The native names of the common dog (M.: *yul;* S.: *sul, sulu, solo*) bear a close affinity to that Nahuatl word. Allen has identified the barkless dog in question with the raccoon, which is, however, called *suksuk* by both Miskito and Sumu.

AGRICULTURE

241 Agriculture is not as highly developed on the Mosquito Coast as in the remainder of Honduras and Nicaragua; it furnishes, nevertheless, the principal means of subsistence.

PREPARING THE PLANTATION.—In order to make their plantation (M.: *insla;* S.: *yamak*) the Indians cut down a patch of the forest, generally on the bank of a navigable stream. The rough work, that is the felling of the trees and the clearing of the ground, is essentially man's work. The large hardwood trees are usually left standing, but all the other giants of the forest are cut down. This work takes place at the beginning of the dry season, about February or March. Toward the beginning of May fire is set to the tangled mass. When the ground has thus been prepared by the men, the women take charge of the future plantation, the planting and cutting down of the grass and weeds being their occupation. Sometimes the man and wife do the planting together. The harvesting is the work of the females.

The ax, machete, and "barreta" or pointed digging stick are the only agricultural implements. The great heat and moisture with the comparatively uniform temperature all the year round enable a constant succession of vegetation, and trees may bear fruit at all seasons. The soil is in general very fertile, but large areas of the country are covered with savannas with sandy and gravelly soil, which is entirely unfit for cultivation and produces only scanty grass, pines, oaks, and various species of scrubby plants. The Indians from this part of the country are therefore compelled to make their planta-

1: Conzemius M-4, 5 (1921) 1932
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to frighten that feline and drive it away, by shooting arrows at it, making great fires, and beating drums. The same belief is held by these Indians with regard to a solar eclipse (T., P.: *ma nawa kaswe;* U.: *ma nawa kasya* "the jaguar is eating the sun").[78]

The Miskito, however, do not share in this superstition; they call the lunar eclipse *kati ñi-skura alkan* "the moon has caught his mother-in-law," and the solar eclipse *yu ñi-skura alkan* "the sun has caught his mother-in-law."[79]

SNAKE CHARMING.—Snake charming is practiced on the Mosquito Coast by Negroes chiefly (native Africans especially), but some of the Miskito are also supposed to know this art. In order to remain invulnerable against the bite of any snake, these people are said to drink from time to time an infusion made by boiling the guaco weed (*Mikania* sp.) in water. The same effect may be obtained by applying a little juice from the latter plant into a small incision in the skin. The chewing of a few guaco leaves every day is also supposed to be an efficacious preventive against snake bites. The best snake charmers are said to eat the head of the reptile after having extracted the poisonous fangs; others merely cook their food with a little fat extracted over a slow fire from the head of a snake. The snake charmer must submit to restrictions in diet during certain periods of the year; he must also abstain from sexual intercourse with other women but his own, lest he might lose his powers.

In order to capture a poisonous snake without any danger to himself, the snake charmer chews a little bark from a certain shrub (M.: *pyuta sdiks*) and then spits upon the head of the reptile. The latter is immediately stupefied and becomes absolutely harmless.

Many people are supposed to keep tame snakes in their houses or fields in order to guard their property. These reptiles act as watchdogs and will bite any intruder. The more ignorant Ladinos, who call such a snake "sontín" (from the English word "something," it appears), believe that this habit is practiced by almost all the Indians and Negroes of the Mosquito Coast.

CAMOTILLO POISON.—This is supposed to be a deadly poison with the aid of which the intended victim will die at a specified date, if everything has been prepared the right way. Even if the victim should know that camotillo has been administered to him he can not escape from a lingering death, for science knows of no way to counteract its effects.

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[78] The Cuna Indians of Panama believe that eclipses of the sun or of the moon are caused by a demon—half dog, half woman—which starts eating those heavenly bodies; these Indians drive the demon away by shooting at it with miniature arrows (E. Nordenskiöld, Comparative Ethnographical Studies, vol. F, pt. 2, Göteborg, 1920, p. 20).

[79] Sun and moon are considered masculine in the Miskito language.

2: Kirchhoff E-4 (no date) 1948
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Harpoons with floats attached are used for large fish and for manatees, the latter being taken in the lagoons and at sea. Harpoons with long retrieving lines but without floats are used for sea turtles. The *Sumo* lasso young crocodiles.

Domesticated animals.—No early source mentions dogs, but they are now common. Pigs, sheep, goats, cattle, horses, and cats have been introduced. The people tame a great variety of wild birds and several species of mammals. The latter are even suckled by the women. Species of native bees are kept in hives near the houses.

Food preparation.—Food may be boiled, sometimes in coconut milk. Meat and fish are broiled or roasted in hot ashes, and fish may be fried in coconut oil. The *Paya* fry green pineapple. Salt is used as a condiment but rarely as a preservative. Sauces of red peppers, lime, and salt are made by the *Mosquito*. The *Paya* use chili as a sauce or as a substitute for other food. Tamales are made of manioc. Maize dough, sometimes soured (*Mosquito*), is wrapped in leaves and baked. This and manioc dough may be made into tortillas, an item introduced into the region only in recent years. Manioc is made into bread, which is baked in the open fire.

Numerous beverages are made of liana sap, maize, honey, green plantains, and the like. Some of these are made of a sour paste, which is diluted with water before it is eaten. Such food is usually carried while traveling. Alcoholic beverages are prepared in canoes (*Mosquito*) or log troughs (*Paya*) and stored in earthenware pots. Fermentation is hastened in various ways, notably by chewing uncooked or cooked maize or manioc and spitting it into the mixture.

Preserving and storage of food.—Fish is dried in the sun and meat is dried on a three-legged babracot. The *Mosquito* make a mixture of green bananas and pejibaye palm nuts which may be kept for 6 months or longer. It can be made into a beverage or baked as bread. The *Sumo* preserve boiled maize by steeping it in lye to remove the hull and then burying it. The *Sumo* also make up large parcels of maize or peeled bananas, which are placed in running water until partially fermented, then dried in the sun. Live turtles are kept in stockades in shallow water.

VILLAGES AND HOUSES

Mosquito villages (pl. 35, *bottom*) had between 100 and 500 inhabitants. *Sumo* villages appear to have been much smaller. Formerly, communal houses, called "palenques," had compartments for each family. Some were about 40 by 80 feet (about 12.5 by 25 m.); smaller communal houses were built by the *Mosquito*. *Sumo* houses had an elaborately carved central post. House plans were rectangular, the ends being rounded, elliptical (*Paya*), or circular (*Mosquito* of Honduras). At the present

3: Pijoan D-5 (ca. 1945) 1946
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February	*Cuswa cati, islu cati:* tortoise time, iswilly lizard time. Few citrus fruits, coconuts or vegetables.
March	*Cacamuk cati:* iguana season. Few green vegetables or fruits.
April	*Willi wantca cati:* male turtle time. Coconuts, very few vegetables, few bananas.
May	*Willi Mayrhen cati:* female turtle time. More bananas, plantains and coconuts.
June	*Li cati:* rain month. Same as May.
July	*Pastara cati:* high wind time. Same as May, a few more greens, bananas.
August	*Sicla cati; wis cati:* ? Few citrus fruits, more greens, bananas.
September	*Wis cati:* wis month.
October	*Sauht cati, prarhi cati:* south wind month, hurricane time. Food consumption depends to a great extent on the weather. Wild fruits, citrus fruits.
November	*Yahlbra cati:* north wind time. Citrus fruits, wild fruits.
December	*Krismas cati:* Christmas month. Fewer vegetables and fruits consumed.

During May, June and July no greens of any kind are available; this is true also during late December and January. Meat consumption remains fairly constant.

Average meat intake per day (June)	960 grams.
Other fruits and foods (June)	400 grams.

The above was the approximate daily consumption of my head boatman, Ramón. Others ate a little more or a little less, but the proportion was about the same. Apparently, members of most families consume about the equal amounts of meats and vegetables as he did. On the other hand, following a hunt, the meat consumption increases significantly and sometimes an entire animal is eaten at one sitting. Be it noted that meat is usually secured from hunting or fishing. This is somewhat striking when one observes the large numbers of turkeys among the families. It is assumed that as such these birds would be eaten frequently but instead they are consumed rarely; they are household pets. To some extent this is true of chickens. Pigs, on the other and, are more frequently eaten; they require little care and in general forage for themselves. Cowmeat, steermeat, heifer meat, etc., is obtained from the occasional slaughter of domestic cattle. The latter are plentiful.

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